

HIGH-DIELECTRIC CONSTANT INSULATORS FOR FEOL CAPACITORS

ABSTRACT OF THE DISCLOSURE

Methods of forming front-end-of the line (FEOL) capacitors such as polysilicon-
5 polysilicon capacitors and metal-insulator-silicon capacitors are provided that are
capable of incorporating a high-dielectric constant (k of greater than about 8) into the
capacitor structure. The inventive methods provide high capacitance/area devices with
low series resistance of the top and bottom electrodes for high frequency responses.
The inventive methods provide a significant reduction in chip size, especially in
10 analog and mixed-signal applications where large areas of capacitance are used.